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## NOTICE OF ALLOWANCE AND FEE(S) DUE

21611 7590 06/26/2008

SNELL & WILMER LLP (OC)  
600 ANTON BOULEVARD  
SUITE 1400  
COSTA MESA, CA 92626

EXAMINER

HINES, ANNE M

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 06/26/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,528

01/12/2004

Yoji Yamamoto

82478-4500

1298

TITLE OF INVENTION: CATHODE STRUCTURE INCLUDING BARRIER FOR PREVENTING METAL BRIDGING FROM HEATER TO EMITTER

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	09/26/2008

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
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Alexandria, Virginia 22313-1450  
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

21611 7590 06/26/2008

SNELL & WILMER LLP (OC)  
600 ANTON BOULEVARD  
SUITE 1400  
COSTA MESA, CA 92626

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,528 01/12/2004 Yoji Yamamoto 82478-4500 1298

TITLE OF INVENTION: CATHODE STRUCTURE INCLUDING BARRIER FOR PREVENTING METAL BRIDGING FROM HEATER TO EMITTER

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nonprovisional NO \$1440 \$300 \$0 \$1740 09/26/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
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HINES, ANNE M 2879 313-340000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_
- 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/755,528	01/12/2004	Yoji Yamamoto	82478-4500	1298
21611	7590	06/26/2008	EXAMINER	
SNELL & WILMER LLP (OC) 600 ANTON BOULEVARD SUITE 1400 COSTA MESA, CA 92626			HINES, ANNE M	
			ART UNIT	PAPER NUMBER
			2879	
DATE MAILED: 06/26/2008				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 317 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 317 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability**

Application No.

10/755,528

Examiner

ANNE M. HINES

Applicant(s)

YAMAMOTO ET AL.

Art Unit

2879

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 3/14/08.
2. ☒ The allowed claim(s) is/are 1-11,13-23,26 and 27.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                            |                                                                                        |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 5. <input type="checkbox"/> Notice of Informal Patent Application                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|                                                                                                            | 9. <input type="checkbox"/> Other _____.                                               |

## **DETAILED ACTION**

### ***Response to Amendment***

The amendment filed on March 14, 2008, has been entered and acknowledged by the Examiner.

Claims 1-11, 13-23, and 26-27 are pending in the instant application.

### ***Allowable Subject Matter***

Claims 1-11, 13-23, and 26-27 are allowed.

Regarding independent claim 1, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 1, and specifically comprising the limitation wherein a cathode structure comprises a columnar electric insulating material body having a diameter larger than a height and a heating wire partially buried and in contact with the electric insulating material body, wherein the heating wire is coiled, within the insulating material body around a first axis, a cathode unit is disposed at a first end surface of the electric insulating material body including a metal cup and a pellet member supported in the metal cup, the pellet member containing an electron-emitting material, and a supporting metal wire attached to the cathode structure between the metal cup and the heater, wherein the heating wire leads out from a second end surface of the electric insulating material body and the first axis of the coiled heating wire is parallel to the first end surface of the electric insulating material.

Regarding claims 2-4, 6-7, 10-11, and 13-16, claims 2-4, 6-7, 10-11, and 13-16 are allowable for the reasons given in claim 1 because of their dependency status from claim 1.

Regarding independent claim 5, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 5, and specifically comprising the limitation wherein a cathode structure comprises a columnar electric insulating material body having a diameter larger than a height and a heating wire partially buried and in contact with the electric insulating material body and leads out from a side surface thereof, wherein the heating wire is coiled within the insulating material body around a first axis transverse to the side surface and wherein the electric insulating material body includes a protrusion disposed on the side surface between a position from which the heating wire leads out and the surface of the cathode unit from which electrons are emitted.

Regarding claims 8-9 and 17-19, claims 8-9 and 17-19 are allowable for the reasons given in claim 5 because of their dependency status from claim 5.

Regarding independent claim 20, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 20, and specifically comprising the limitation wherein a cathode structure for an electron gun comprises a metal cylindrical cup with a columnar pellet contained within an inner diameter of the metal cup and a columnar electric insulating material body having a

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diameter larger than a height including a heating wire in contact with insulating material of the insulating material body, having electrode leads extending from one end of the insulating material body around a first axis parallel to the electron emitting surface of the columnar pellet and a plurality of support wires attached to the cathode structure between a bottom of the metal cup and a surface of another end of the columnar electric insulating material body to extend laterally outward from the bottom of the metal cup and the columnar electric insulating material body having a lower extending annular wall surrounding the electrode leads.

Regarding claim 21, claim 21 is allowable for the reasons given in claim 20 because of its dependency status from claim 20.

Regarding independent claim 22, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 22, and specifically comprising the limitation wherein a cathode structure comprising a heater including a columnar electric insulating material body having a diameter larger than a height and a heating wire that is partially buried and in contact with the electric insulating material body and the heating wire leads out from a second end surface of the of the electric insulating material body, wherein the electric insulating body is in a circular columnar shape, has a longitudinal axis, and includes a part that has a greater diameter than that of the second end surface and the heating wire is coiled within the insulating material body around a first axis that is transverse to the longitudinal axis.

Regarding independent claim 23, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 23, and specifically comprising the limitation wherein a cathode structure comprises a heater including a columnar electric insulating material body and a heating wire that is partially buried and in contact with the electric insulating material body and the heating wire leads out from a second end surface of the electric insulating material body and the electric insulating material body includes a wall disposed on the second end surface so as to surround a position from which the heating wire leads out and is disposed around a perimeter of the second end surface, the second end surface surround by the wall rises in a dome shape and the heating wire leads out from a position between the wall and a center of the second end surface.

Regarding independent claim 26, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 26, and specifically comprising the limitation wherein a cathode structure comprises a columnar electric insulating material body and a heating wire that is partially buried and in contact with the electric insulating material body, wherein the heating wire is coiled within the insulating material body around a first axis and the heating wire leads out from a second end surface of the electric insulating material body and the first axis of the coiled heating wire is parallel to the first end surface of the electric insulating material, the electric insulating body includes a wall disposed on the second end surface so as to surround a position from which the heating wire leads out, wherein the wall is disposed around a perimeter of the second end surface, the second end surface surrounded by



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the wall rises in a dome shape and the heating wire leads out from a position between the wall and a center of the second end surface.

Regarding independent claim 27, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 27, and specifically comprising the limitation wherein a cathode structure comprises a columnar electric insulating material body having a diameter larger than a height and a heating wire partially buried and in contact with the electric insulating material body, wherein the heating wire is coiled, within the insulating material body around a first axis, a cathode unit is disposed at a first end surface of the electric insulating material body including a metal cup and a pellet member supported in the metal cup, the pellet member containing an electron-emitting material, wherein the heating wire leads out from a second end surface of the electric insulating material body and the first axis of the coiled heating wire is parallel to the first end surface of the electric insulating material to provide a compact configuration for the cathode structure with an enlarged heat transmitting capacity and the electric insulating material body is in a circular columnar shape, and includes a part that has a greater diameter than that of the second end surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anne M Hines/  
Patent Examiner  
Art Unit 2879

/Nimeshkumar Patel/  
Supervisory Patent Examiner, Art Unit 2879